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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,137	01/25/2002	Manish Goel	TI-32620	1976
23494	7590	09/22/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			MAI, TAN V	
			ART UNIT	PAPER NUMBER
			2124	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,137

Applicant(s)

GOEL ET AL.

Examiner

Tan V Mai

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The drawings are objected to because the labels "(B-1)-bit (unsigned)" [output of element 215 in Fig2] and "(2B-1)-bit (unsigned)" [output of element 240] seems to be inconsistent with the claimed feature in claims 3 and 6. It is noted that the "second multiplier" receiving **most** significant bits of first and second inputs. Therefore, the result should be "signed" format. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 5, the term "where B odd even" (line 3) should be --where B is odd--.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.⁷

4. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Mehrgardt. Mehrgardt discloses, e.g., see "BACK GROUND OF THE INVENTION", col. 1, lines 6-29, the invention substantially as claimed. The equation shows the magnitude of a complex number:

" $B = x + y$,i.e., the value of the **complex digital quantity** $x + iy$." (lines 17-18)

and "[t]he value B could be calculated electronically by **squaring x and y** and the **extracting the root** by known methods, ..." (lines 22-24). It is noted that Mehrgardt does NOT mention about the claimed "summing unit"; however, the equation clearly indicates that summing means is required to sum the results of **squaring x and y**. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Mehrgardt's teachings because the reference discloses a circuit for calculating the absolute value of a complex number as claimed.

5. Claims 2-3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehrgardt as applied to claim 1 above, and further in view of Dieterich.

Mehrgardt has been discussed in paragraph 4 above.

As per dependent claim 2, the claim details the "first squaring unit" and "second squaring unit"; however, the feature is old and well known in the art. For example, Dieterich discloses a square of a value can be partitioned in two portions, e.g., see col. 2, lines 26-36 and equation (1). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Dieterich feature in Mehrgardt, thereby making the claimed invention, because the proposed device is a circuit for calculating the absolute value of a complex number having the detail of "first squaring unit" and "second squaring unit" as claimed.

As per dependent claim 3, the claim adds the "unsigned multiplier" and "signed multiplier" features. The features are obvious to a person having ordinary skill in the art because the multiplier for multiplying both least significant bits portions should provide

"unsigned result" and the multiplier for multiplying at least one most significant bits should provide "signed result".

Due to the similarity of claims 5-8 to claims 2-3, they are rejected under a similar rationale.

6. Claims 4 and 9-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance: the recorded references do NOT teach or suggest: (1) the detail structure of the "first multiplier" feature as recited in dependent claim 4 and the detail structure of the "square root unit" feature as recited in dependent claim 9.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (703) 305-9761. The examiner can normally be reached on Tue-Fri from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are:

After-final	(703) 746-7238
Official	(703) 746-7239

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Non-Official/Draft (703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



TAN V. MAI
PRIMARY EXAMINER